

meaning of the words used in the following claims that define the invention. For example, while several possible designs have been described above, persons of ordinary skill in the art will understand that a variety of other designs still falling within the scope of the following claims may be envisioned and used. It is contemplated that these or other future modifications in structure, function or result will exist that are not substantial changes and that all such insubstantial changes in what is claimed are intended to be covered by the claims.

I claim:

1. An oil purifier for an internal combustion engine for separating contaminants in an oil stream from the oil, comprising:

- a housing enclosing a platen, the platen having an evaporation surface;
- an oil distributor located in the housing and above the platen, the oil distributor configured to receive an incoming oil stream and having a discharge manifold configured to transform the oil stream into a mist directed toward and distributed over at least a portion of the evaporation surface; and
- a heating element in thermal communication with the platen;

whereby the evaporation surface is heated to a temperature sufficient to volatilize the contaminants, resulting in a purified liquid oil which may be collected and reused with the engine.

2. The oil purifier of claim 1, wherein the heating element is in physical contact with the platen.

3. The oil purifier of claim 1, wherein the evaporation surface includes an upper portion which receives the oil mist and upon which the oil forms a film, and a lower portion which receives the oil film flowing toward it under the influence of gravity and from which the purified liquid oil is collected.

4. The oil purifier of claim 3, wherein the evaporation surface comprises an inverse substantially conical shape having a plurality of substantially planar downwardly sloping sides.

5. The oil purifier of claim 3, wherein the evaporation surface lacks horizontal surfaces between the upper portion and the lower portion.

6. The oil purifier of claim 3, wherein the primarily planar side portions include horizontal grooves.

7. The oil purifier of claim 3, wherein the plurality of substantially planar side portions converge at transition points, and at least one of the transition points is rounded.

8. The oil purifier of claim 1, wherein the contaminants are discharged to the atmosphere and/or to the engine manifold.

9. The oil purifier of claim 1, wherein the liquid oil is collected and returned to an oil fill associated with the engine.

10. The oil purifier of claim 1, wherein a gap is provided between the platen and a bottom plate of the housing, and the liquid oil is collected on the bottom plate.

11. The oil purifier of claim 1, wherein the platen extends to a bottom plate of the housing, thereby separating the housing into an inner chamber and an outer chamber, and the liquid oil remains in the inner chamber.

12. The oil purifier of claim 1, further comprising a metering jet for regulating the oil stream prior to the oil stream being introduced to the oil distributor.

13. The oil purifier of claim 1, further comprising a three-stage filter configured to remove particles greater than three microns from the oil stream prior to the oil stream being introduced to the oil distributor.

14. The oil purifier of claim 1, wherein the housing is maintained at approximately atmospheric pressure and the distributor is configured to receive the oil stream at greater than atmospheric pressure.

15. An oil purifier for an internal combustion engine for separating contaminants in an oil stream from the oil, comprising:

- a housing enclosing a platen, the platen having an evaporation surface, the evaporation surface having an inverse conical shape consisting primarily of a plurality of primarily planar side portions that slope at a plurality of downward angles from an upper portion to a lower portion;
- an oil distributor located in the housing and configured to receive an incoming oil stream, the oil distributor having a discharge manifold configured to direct the oil stream toward, and to distribute the oil stream over, the upper portion of the evaporation surface; and
- a heating element in thermal communication with the platen;

whereby the evaporation surface is heated to a temperature sufficient to volatilize the contaminants, resulting in a purified liquid oil which may be collected from the bottom portion of the evaporation surface and reused with the engine.

16. The oil purifier of claim 15, wherein the evaporation surface comprises an inverse conical shape having a plurality of substantially planar side portions that slope at downward angles from the upper portion to the lower portion.

17. The oil purifier of claim 15, wherein the evaporation surface lacks horizontal surfaces between the upper portion and the lower portion.

18. The oil purifier of claim 15, wherein the substantially planar side portions include horizontal grooves.

19. The oil purifier of claim 15, wherein the plurality of substantially planar side portions converge at transition points, and at least one of the transition points is rounded.

20. A method of separating contaminants from an oil stream associated with an internal combustion engine, the steps comprising:

- introducing a contaminated oil stream from the engine to an oil distributor;
- transforming the contaminated oil stream to a mist;
- distributing the mist over an upper portion of an evaporation surface located in a housing;
- heating the evaporation surface;
- discharging the contaminants from the housing;
- collecting the purified oil from a lower portion of the evaporation surface; and
- reintroducing the purified oil to the engine.

21. The method of claim 20, wherein the oil stream is at greater than atmospheric pressure when introduced to the oil distributor, and the housing is maintained at approximately atmospheric pressure.

22. The method of claim 20, further including the step of passing the contaminated oil stream through a three-stage filter configured to remove particles greater than three microns from the oil stream.